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## MESSAGE

Claim 1 is directed to "*A thin film formation method*" and claim 7 is directed to "*A solar cell production method*".

It is noted that the claimed limitation (B) defines "intervals" among conductors and requires equality among the intervals. In turn, the claimed limitation (E) defines "distances" between the array antennas and the substrates and requires equality of the distances with the intervals defined by (B).

The claimed subject produces the following beneficial results: First, the thin films formed by the claimed methods inherently contain at least microcrystalline silicon. Next, the claimed subject provides controllability of a ratio of microcrystalline silicon to amorphous silicon. They are detailed in the specification, for example in lines 10-12 on page 8 and in the paragraph starting from line 26 on page 8. Existence of microcrystalline silicon and its ratio critically have positive influence on the property of the obtained silicon film. Therefore, controllability of them obtained from the claimed subject provides improved properties.

Ueda teaches a plasma processing apparatus, and further teaches that its apparatus is applicable to deposition of a solar cell, as acknowledged in the Office Action. However, Ueda and the remaining cited art do not disclose or suggest having substrates away from the array antennas by distances substantially *equal* to the intervals (among conductors), as recited in claims 1 and 7.

In contrast, the references fail to teach how to form films inherently containing a microcrystalline structure. Although Kohmeyer and Kaschmitter teach conversion of an amorphous film into a microcrystalline structure as asserted in the Office Action, these teachings require a conversion process to obtain a thin film having a microcrystalline structure. In light of these teachings, one skilled in the art would not predict that Ueda as modified in the Office Action would produce a thin film having a microcrystalline structure if further combined with a conversion process as taught by Kohmeyer and Kaschmitter. Therefore, the results produced by the claimed subject are unexpected.

The Office Action on page 2 argues similarity between the plasma processing apparatus of Ueda and the apparatus used in the claimed methods. The Action further states on page 3 "The conductors are formed such that there is a distance L2 between conductors based upon the wavelength and frequency applied (col. 7, lines 12-55), in order to create a uniform plasma density in the space between the electrodes" and then

concludes that the claimed subject would be obvious. However, this argument is apparently pertinent only to “equal intervals” among conductors and not pertinent to an equality of the claimed “distances” with the “intervals”. The argument overlooks the express limitation (E) “installing a plurality of substrates ... so as to have respective distances between the array antennas and the substrates substantially equal to the intervals”.

The middle of page 11 of the Office Action states “Applicants do argue (p3 of reply) that examiner argues that distances should be equal because other distances may be equal - but this is not the case. Examiner points to arguments related to formation of and exposure of the substrate to uniform plasma.” However, in the argument on page 3, uniformity of plasma is *merely related* to dimensions of conductors. Both Ueda and the Office Action fail to argue how uniformity of plasma is related to distances from the array antennas to the substrates. Based on the Examiner’s arguments, one would consider that uniformity of plasma is determined only by dimensions of the conductors and therefore the substrates would be exposed to uniform plasma no matter how the substrates were disposed, as long as the plasma reached the substrates. Thus, the Examiner’s arguments are not effective in determining obviousness in regard to the limitation (E).

More specifically, the arguments in the Action fail to show a rationale why one skilled in the art would modify Ueda’s method so as to meet the aforementioned limitation (E). The Action disregards the claim limitation (E) and is therefore contrary to the “as a whole” requirement.

**Overlooking unexpected results:**

The applicant had shown unexpected results in the previous response filed on April 23, 2010 to rebut a presumption of obviousness. The Office Action denies the rebuttals based on the unexpected results for the reason that “the features upon which applicant relies ... are not recited in the rejected claim(s)” (see page 13). This is incorrect because showing evidence of unexpected results is not a role of the claims, but a role of a specification or a prosecution history. When a specification as filed shows results that are unexpected, the specification is sufficiently evidential.

The Action further refers the case of *In re Van Geuns* to state “limitations from the specification are not read into the claims”. However, results are not a limitation, but what is produced by a claimed subject. They are separate issues. Incorporation of unclaimed limitations from the specification is unnecessary to argue the unexpected results.

The Action still further states “The claim is comprising and the ‘forming of the thin films’ may include other steps and additionally may include other steps in order to effect the microcrystallinity.” The Examiner appears to suggest that claims should explicitly recite exclusion of other steps such as a conversion process taught by *Kohmeyer* or *Kaschmitter*. However, what controls the case is determination as to whether results produced by the claimed subject are unexpected. Any results produced by other steps not recited in claims are irrelevant to the current case. Examination must be achieved only on currently active claims.

If any claim is always required to recite exclusion of any elements that produce results similar to those of the subject matter, numberless limitations must be incorporated into the claim. This is unrealistic and also baseless. Moreover, it is noted that omission of an element and retention of its function is an indicia of unobviousness. *In re Edge*, 359 F.2d 896, 149 USPQ 556 (CCPA 1966). In the case of *In re Edge*, claim at issue does not explicitly point out omitted elements although claim uses the term “comprising” as with the current case. However, the CCPA found the claim unobvious. Thus exclusion of additional steps is not required in determining unobviousness.